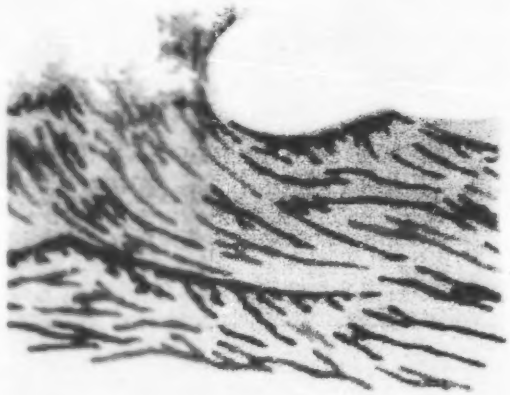
FISHERIES
RESOURCE
CONSERVATION
COUNCIL

2001 / 2002 CONSERVATION REQUIREMENTS FOR 2J3KL COD

REPORT TO THE MINISTER OF FISHERIES AND OCEANS



FRCC.2001.R.5
MAY 2001

Published and designed by:

Fisheries Resource Conservation Council
P.O. Box 2001
Station D
Ottawa, ON
K1P 5W3

Web Site: www.dfo-mpo.gc.ca/frcc

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Cat. No. Fs1-61/7-2001E
ISBN 0-662-30629-5

Aussi disponible en français

101-03536/

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LETTER TO THE MINISTER

May 24, 2001

The Honourable Herb Dhaliwal, P.C., M.P.
Minister of Fisheries and Oceans
200 Kent Street
Ottawa, ON K1A 0E6

Dear Minister,

The Fisheries Resource Conservation Council (FRCC) herewith presents to you its report on 2001/2002 Conservation Requirements for 2J3KL Cod.

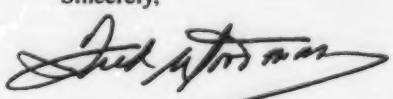
The Council recommends the continuation of the moratorium on cod fishing in the shelf areas, and the capping of total removals at 5,600t, including all directed catches, bycatch, sentinel and recreational catches in the coastal areas. The Council believes that all stock removals must contribute to the monitoring of stock status and be of scientific value. For this reason, the Council recommends index and sentinel fishing only on the 2J3KL cod stock.

During our consultations, the Council heard two distinct messages from stakeholders. In the first, alarm was expressed over the continuing expansion of the harp and hooded seal herds off the northeast coast of Newfoundland. Indeed, the recent Stock Status Report acknowledges the possibility that predation by seals is preventing the recovery of the 2J3KL cod stock. In our report, the Council recommends that areas where cod are aggregated and where seals are inflicting high mortality on cod be designated as seal exclusion zones.

The second message which we heard was the opposition of fishermen to the proposed recreational fishery. Indeed, this opposition was so strong as to sidetrack our public consultations on the status of the stock. Given the Council view that all stock removals must contribute to the monitoring of stock status and be of scientific value, the Council does not support a recreational fishery at the present time for 2J3KL cod.

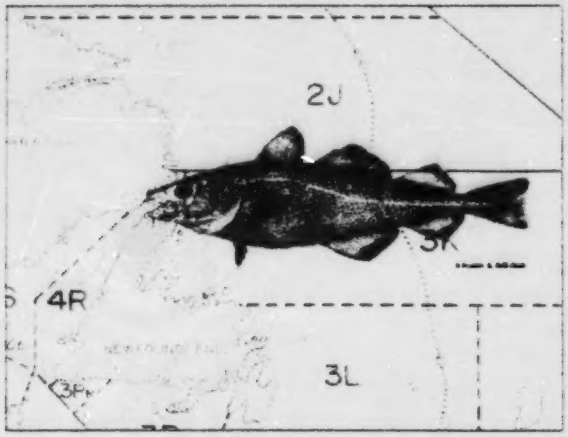
During the coming year, as we have outlined previously, the Council will continue its endeavour to develop a Fisheries Resource Conservation Plan for 2J3KL cod, in consultation with stakeholders, and fisheries managers and scientists.

Sincerely,



Fred Woodman
Chairman

Cod - 2J3KL



Perspective

The northern cod (NAFO divisions 2J3KL) stock was and potentially remains the largest groundfish resource in the Northwest Atlantic Ocean. The stock inhabits an area of approximately 400,000 square km. Historically, cod in abundance migrated from over-wintering shelf areas to feeding areas in coastal waters, and smaller component over-wintered and spawned in the Bays. Cod in areas 2J3KL grow relatively slowly and at age five reach about 50 cm (20 inches) and weights of approximately 1 kg. As late as the 1980s, most female cod in this stock reached maturity at ages 6-7, but in the past decade age at maturity has declined to 4-5 years of age. Cod of the 2J3KL stock prey on a wide variety of species, but the dominant food species of this stock was historically capelin.

The northern cod stock has supported a commercial fishery since the 16th century. The fishery was traditionally prosecuted by a large fleet of small vessels that deployed traps and gillnets, and hook and line in more coastal waters from late spring to autumn. From the 1960s until the fishing moratorium large otter trawlers prosecuted the fishery in offshore waters, mainly through winter and early spring. In the decades prior to the 1960s catches ranged between 200-300,000 tonnes annually. Catches increased to over 800,000 tonnes in the 1960s and the stock declined until the mid -1970s. After the extension of jurisdiction in 1977, the stock increased until the mid -1980s but has since declined to a very low level. Over-fishing and unfavourable environmental conditions may explain the collapse of the stock that occurred in the early 1990s. The stock is widely acknowledged to be at its lowest levels in recorded history.

Analysis

Stock Structure and Distribution

The stock structure of 2J3KL cod changed significantly during the late 1980s and early 1990s. Abundance declined sharply and the decline continued after the cessation of the Canadian commercial fishery in 1992. The present distribution of 2J3KL cod reflects a very low abundance in the shelf components and concentration in the coastal areas of Trinity and Bonavista Bays. Some genetic studies suggest that the shelf-spawning components may differ from the populations in the coastal area, but geneticists are divided as to the ecological significance of this difference. There are two fundamental models for the stock: 1) a single stock model in which all components freely mix on a rapid time scale and form a single functional group; and 2) a sub-component model, in which various components, in particular the coastal and shelf components, reproduce almost exclusively within their own population, recolonize other spawning areas only at long time scales (10s-1000s of years), and hence can be considered to be functionally separate groups. There can be gradients between these interpretations. Recent evidence suggests that the populations in the coastal areas are more similar to one another in genetic composition and population structure than to the shelf components. Thus far, there is no compelling evidence of range expansion or recolonization, although this is not conclusive. Nevertheless, the genetic differences are for the most part very small, and there is inconclusive evidence that they are stable over time. It is clear that distribution expansion is key to stock recovery and under either model there is no reason to believe that expansion and recolonization will not occur, especially to regions adjacent to areas now holding spawning groups (Trinity to Notre Dame Bay or Funk Island to Belle Island Banks as examples). We assume that both stock size and environmental conditions (predators and prey distribution) influence range expansion, and that the more sub-components expand, the more likely stock productivity will increase. The FRCC believes based on the weight of the evidence that the sub-component model is more likely correct than the single stock model. Nevertheless, this conclusion could be incorrect and hence a more cautious strategy of bet-hedging is recommended.

The FRCC is proceeding to construct a draft long-term conservation plan to determine the direction in which

Figures are in 000t

Year	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000*
TAC	266	266	256	266	235	199.3	190			Moratorium				4	9	7
Catch	236.1	274.7	245	268.7	254.1	233.6	155	28.3	4.1	1.3	1.7	0	0.07	3.5	8.07	4.66

* Canadian catch as of March 28/01

1. Figures are from the Integrated Fisheries Management Plan Atlantic Groundfish

2J3KL cod be managed on a long-term basis. The objective of the long-term plan is to rebuild the sub-stock structure to include the full range of the former stock, both in the coastal area and on the shelf, from the northern Grand Bank to the Hamilton Bank, with the understanding that rebuilding is likely to take decades.

Shelf Stock Components

DFO conducts bottom trawl surveys each fall on the shelf and Banks of 2J3KL. The abundance index from this survey increased by 70% from 1998 to 1999 and increased marginally from 1999 to 2000. The increase occurred in 3K and 3L but not in 2J. Acoustic-trawl surveys in June in the Bonavista Corridor (shelf 3KL) indicated significant numbers of fish in 2000. Acoustic surveys have also monitored a small spawning group in the Hawke Channel area of 2J. In both types of surveys on the shelf, there were very few fish older than 5 years and most of the increase was attributed to fish of ages 2

Sources

DFO Science

SSR A2-01 (2001) Northern (2J3KL) Cod

FRCC Consultations

The FRCC held consultations on this stock in:

St. John's, NF (April 10)
Grand Falls, NF (April 11)
Clarenville, NF (April 12)

Written briefs

Fish, Food and Allied Workers, Earle McCurdy (2001-010-00127)
George Chafe, Petty Harbour, NF (2001-010-00101)
Fish, Food and Allied Workers, Harvey Jarvis (2001-010-00110) (2001-010-00133) (2001-010-00134)
Southern Shore Inshore Fishermen's Action Committee, Donald Drew (2001-010-00113)
Gilbert Penney, Hickman's Harbour, NF (2001-010-00114)
Petty Harbour Fishermen's Coop, Tom Best (2001-010-00115)
Hayward Pike, Charleston, NF (2001-010-00116)
Wilfred Bartlett, Brighton NF (2001-010-00135)

Council's Views on Stock Status

Overall Stock Indicator:	stock at extremely low level compared to historical times with some potential for improvement in coming years
Overall biomass:	extremely low relative to historical levels (3%). Pockets of very high density in coastal areas
Recruitment:	overall very poor, with some improvement in limited coastal areas. Potential increase in recent years.
Growth and Condition:	growth and condition declining in past 1-2 years
Age Structure:	very poor in the shelf components (unexplained declines in fish at about age 5), improving in the coastal area, but few fish older than 10 years
Distribution:	poor on the shelf and northern coastal areas (2J and 3K), stable in coastal northern 3L, variable in southern coastal 3L
Recent Exploitation Level:	nil in 2J, moderate to high in 3K, low in 3L

The FRCC recommends that the moratorium on fishing the shelf and Bank sub-components of 2J3KL cod continue for the foreseeable future.

Protecting spawning aggregations of cod is a prime strategy of FRCC conservation plans. Implementations have already been achieved in Smith Sound and recommended for parts of Placentia Bay. Closure of portions of critical areas of offshore banks appears to be associated with successful rebuilding of some groundfish stocks, for example on Georges Bank. Implementation of such a strategy in 2J3KL is recommended by the FRCC, with the intention of providing the maximum protection for cod with minimum disruption to existing fisheries, in particular those for shrimp.

The FRCC recommends that portions of the historical spawning grounds in the Hamilton Bank-Hawke Channel region, Funk Island Bank and Bonavista Corridor, be closed to all gear types in which significant catches of cod are likely, or significant disruption of spawning behavior can be anticipated. The areas, times and specifics of closures should be defined by consultation between DFO Science, Fisheries Management and Industry.

Coastal Stock Components

The coastal component of the northern cod is in better condition than shelf components. However, the only known large over-wintering and spawning concentration is located in Smith Sound, Trinity Bay. At present, this aggregation is exceptional and may be key to the recovery of coastal sub-components and perhaps beyond. Recent acoustic surveys in Smith Sound indicate an average biomass estimate that has grown over the past 6 years from approximately 15,000 to 30,000 tonnes. Several year-classes since 1990 are well represented in this aggregation and are similar to those represented in the commercial fishery. Over-wintering fish spawn in Smith Sound (and potentially in other adjacent regions) and migrate from the Sound northward during late spring and summer. These fish return to the Sound in late autumn where they over-winter. Observations from fishers are consistent with this migration pattern.

The FRCC believes that management measures introduced in 1999 and 2000 have been highly effective in protecting fish aggregated in Smith Sound and should be continued.

The FRCC recommends that a survey approach similar to that used in Smith Sound and Trinity Bay be implemented in Bonavista and Notre Dame Bays.

Tag returns from the fishery in 2000 provide estimates of cod movements and exploitation. Tag returns were highest in southern 3L (22%) and lower in northern 3L and 3K (10%). This result contrasts with 1999 tagging, in which returns were highest in area 3K (26%), lowest in northern 3L (7%), and at an intermediate level in southern 3L (11%).

Information from recaptures of cod tagged in coastal 3KL during 1997 through 1999 and catch data were used to estimate exploitation rates. Two different methods were used to estimate biomass in the coastal region from tagging exploitation rates. One analysis that considered the effects of tag loss and reporting rate indicated an upper bound cod biomass of 77,000t in coastal northern 3L and 3K (subsequently revised downward to 64,000t with the inclusion of tag returns since the SSR analyses by DFO Science). Another method that considered the effects of migration indicated a biomass of 41,000t. In 1999, a similar method to the one that indicated 77,000t, suggested 55,000t in northern 3L and 3K. Estimates could not be derived for southern 3L due to the movements of cod from 3Ps to southern 3L and back.

Sentinel Fishery

The sentinel fishery in 2J3KL has been conducted since 1995 to provide a valuable index of cod catch rates in coastal waters. Over the full 2J3KL region, these surveys indicate declining catch rates in both gillnet and line-trawl sentinel fisheries. However, there is spatial diversity in these survey results. Low catch rates persist in areas 2J and 3K north. In southern 3K, catch rates have also declined. In contrast, in northern 3L, gillnet catch rates increased from 1995 to 1998 and have remained relatively stable in 1999 and 2000. Line trawl catch rates also remained relatively unchanged from 1998 to 2000. The catch rates at age indicate the 1990 and 1992 year-classes to be strongly represented and that year-classes subsequent are weaker.

The FFAW in conjunction with fishermen committees conducted an extensive questionnaire, the results of which indicate that the sentinel survey catch rates reflected the observations of fishermen in most areas. Many fishermen's committees (67%) indicated that catch rates were low, as compared to 43% in 1999. Fifty percent reported sounder recordings in 2000 were less than in 1999. Sixty-eight percent reported more signs of small cod than in 1999, while 74% reported cod condition as "good". A compelling 92% reported that sentinel catch rate trends and overall index fishery catch rate trends were the same. Lack of capelin was noted as a key reason for poor fishing by many. Re-

ports of bait fish were equally divided between less, more, and the same as in 1999. These responses were very consistent with the areas where the commercial catches in coastal areas were also low i.e. area 2J, northern 3K, eastern Trinity Bay and Conception Bay, particularly. Other responses from fishermen's committees indicated average catch rates (37%), and high catch rates (22%). High catch rate responses reflected sentinel sites in the area from the most eastern coastal part of 3K to the area of Smith Sound in western Trinity Bay. Fishermen believe that changes in cod distribution in 2000 may account for part of the decline in sentinel catch rates.

There have been reports of potential higher fish abundance in May and June in northern 3K (Green Bay)

The FRCC recommends that the occurrence of fish in this region be investigated with additional sentinel coverage.

Index Fishery

The FRCC believes that the maintenance of a small vessel coastal fishery and the scientific data provided by it are essential to monitoring of stock status. The time series of sentinel fishery data is providing essential data on stock states, as are fishery data from fishermen's logbooks on spatial and temporal distribution, catch rates, and age and weight of year-classes. The coastal estimates of abundance from tagging data require tag returns from an informed and enforced fishery. The FRCC believes that all stock removals must contribute to the monitoring of stock status and be of scientific value. This qualification underpins all FRCC recommendations for conservation measures and TACs for this stock.

Fishermen have varying views about the state of the northern cod stock. However, the views expressed overall are consistent with the findings and conclusions provided by science:

- shelf components are very low,
- northern coastal components are also very low,
- catch rates have declined in southern 3K, either as a consequence of high exploitation rates or changing migration patterns.
- catch rates are high in northern 3L consistent with the relatively large coastal aggregation over-wintering in the area,
- catch rates are highly variable in southern 3L as a consequence of the migration of cod from 3Ps. Scientists are unable to provide an estimate of a resident stock due to the transient presence of cod from the more southern zone in this area.

Fishermen hold mixed opinions as to whether a commercial fishery can be sustained at or above the level of 2000. Very few fishermen argue for an increased fishery.

Recreational Fishery

The proposed recreational fishery in Newfoundland and Labrador will directly impact the 2J3KL cod stock. The FRCC supports the use of licences and tags in such a fishery, but does not believe that the proposed recreational fishery can be adequately controlled. The FRCC is particularly concerned about excessive effort and catch as a consequence of the length of seasons, the number of tags, and the difficulty of enforcing regulations. The FRCC is also concerned that closed area restrictions such as apply to Smith Sound be respected by all fisheries. In addition, fishermen stated strongly at all consultations that the imposition of a recreational fishery at this time will impact conservation concerns, and offer expanded opportunities to act as a cover for illegal fishing.

For stocks such as 2J3KL, which are in a highly depleted state, the FRCC supports only those fisheries that return the maximum information to science and management. Although DFO has made an effort to design a recreational fishery that provides information and can be included in the total recommended removals, the FRCC does not believe that this information will be of equivalent quality to data from the sentinel and index fisheries collected by professional fishermen. Hence, in consideration of all of the above, **the FRCC does not support the recreational fishery at the present time for 2J3KL cod.**

Biological Factors and Recruitment

The age at which northern cod reach maturity continues to be low relative to the early 1980's. The proportion of age six cod that are mature currently is about 80%. This is double the level in the 1980's when only about 40% were mature. Cod condition was increasing in the late 1990s but has declined in the past 1-2 years. This decline is especially apparent in the shelf components, less so in the coastal regions.

A recruitment index was derived from inshore sentinel data as well as from other data from offshore and inshore surveys during the period of the 1990's. The stock components that this index might apply to are not specified. The index shows declines from 1989 to 1991, an increase in 1994, declines to 1996, and then increases substantially after 1998. The estimates for the most recent years, 1998 to 2000, must be viewed with caution, as their relationship to ultimate year-class strength remains uncertain. It is noteworthy that the dominant 1990 and 1992 year-classes present in the catch and coastal research data are not predicted by the recruitment index. Research in Smith Sound and observations of fishermen both indicate relatively stronger recruitment in recent years in coastal areas than on the shelf.

During 2000, the fishery was prosecuted mainly through the deployment of gillnets. The dominant use of this gear type is of concern to the FRCC. The FRCC is strongly of the view that a sustainable fishery for this stock can most readily be attained through restoration of traditional fishing patterns. The rapid and recent expansion of gillnets must be reversed and the proportions of traditional cod-trap and hook and line fishing restored.

The FRCC recommends that measures be introduced to provide for a more traditional balance in the use of various gear types in coastal areas.

The FRCC recommends that gillnets not be used after October 1 because foul weather conditions increase the likelihood of discarding, lost nets, and wastage.

All gillnets should be tagged. The increased usage of cod-traps offers fishermen an alternative to gillnets, but should come only after the "small fish" problem with this gear is rectified.

The FRCC recommends that a research program on cod-trap selectivity employing joint DFO-Industry initiatives be implemented to address the small fish problem with cod traps.

During 2000, fishing occurred in two seasonal periods. The first was during July (about 3 weeks), and the second season occurred from mid-September to November. A total catch of 4650t was reported, primarily from Trinity, Bonavista and Notre Dame Bays (northern 3L and 3K). The timing of this fishery is for the most part consistent with traditional fishing patterns in the coastal areas of 2J3KL cod (with the exception of the protection of spawning fish from April to June). The Council is of the view that fishing should be spread over space and time to the greatest degree possible within the traditional fishing period. The 2J3KL cod stock becomes highly aggregated during winter and through the spring spawning season and in this period is very vulnerable to fisheries. At present the remaining aggregations occur in accessible coastal areas such as Smith Sound and the inner portions of Bonavista Bay. Fishing should be avoided during periods of highest aggregation and spawning.

The FRCC recommends that the restriction of cod fishing in coastal 2J3KL to the period June 1 to November 30 be kept in place.

Predation and Prey

Mortality of northern cod caused by harp and hooded seals continues to be a major concern of the FRCC. Revised consumption estimates of harps for 2000 are approximately 37,000t of Atlantic cod, 893,000t of capelin, and 185,000t of Arctic cod. There are no estimates of consumption by hoods. Data suggest that most recent harp seal consumption includes a higher proportion of larger Atlantic cod. Mortality inflicted by "belly-feeding" is not included in these estimates, and continues to be observed in several coastal areas, particularly in Bonavista Bay. The SSR has concluded that seal predation may be limiting cod recovery. Cod over-wintering in coastal areas are very vulnerable to predation mortality, especially given the cold waters which slow cod metabolism and expose them to the risk of freezing if chased into sub-zero temperatures. The FRCC has grave concerns that seal numbers have increased substantially in Smith Sound in the past 2 years, and that this one remaining aggregation may become the target of increased seal predation. That seals should be able to depredate the last remaining large aggregation of northern cod is unconscionable and unacceptable to the FRCC. The FRCC is also concerned about hooded seal numbers and the lack of adequate diet sampling on harp and hooded seals on the shelf. The paucity of such diet data, and uncertainties about distribution patterns of feeding seals, is also of concern to the FRCC. Research is needed on these issues.

During the FRCC's consultations, fishermen continued to express concern with regard to seal predation and many fishermen expressed deep frustration by the lack of action by DFO to address this ongoing problem. Fishermen are additionally concerned with the increasing presence of hooded seals in the Bays of the northeast coast. Fishermen expressed the view that the ecosystem is out-of-balance, that there are too many seals relative to cod, and that seals are being observed in the coastal area over extended periods of time.

Fishermen believe that seals are reducing the spawning potential of the stock, and are recommending that appropriate steps be taken to authorize the control of seals in areas where seals are destroying cod in large numbers.

The FRCC recommends that areas be identified where cod are aggregated during winter or where seals are inflicting high mortality on cod, and these areas be designated as seal exclusion zones. Within these areas, measures must be taken immediately to protect and conserve cod.

The FRCC recommends that a trained Cod Conservation Team be formed for Trinity and Bonavista Bays, which would have the responsibility to remove seals from exclusion zones, for example Smith Sound (and engage in other conservation measures to protect these fish).

The FRCC recommends that seal harvest management plans include recommendations for reductions in herd size to levels that will sustain a long-term seal industry and are compatible with groundfish rebuilding strategies.

The trend in biomass of capelin, the major prey of cod in this area, has been uncertain since the late 1980s. The SSR expresses concern that rebuilding in cod may be related to a lack of food (historically capelin) over portions of the stock range. The true state of the capelin stock remains unclear. On the one hand, DFO Science maintains that capelin year-class strength in the 1990s is high. This optimism is not shared by commercial fishermen nor have these fish been observed in the expected numbers by various but limited surveys. Fishermen have expressed concern about the capelin fishery. Many fishermen believe that the abundances of capelin and cod are intrinsically linked and that cod will only recover when capelin is again abundant in all areas of 2J3KL. In view of the importance of capelin to this ecosystem and the uncertainty about the present state of this stock, a comprehensive survey is required.

The FRCC recommends that no increase in capelin quota be considered until a full survey is conducted and the total biomass assessed.

Enhancement of Rebuilding

The northern cod has not rebuilt substantially over the past decade. There is likely less biomass in 2001 than in 1992 when the moratorium was imposed. The management strategy employed during the past decade has been one of wait and see. The management plan has included low exploitation, limits to bycatch, and protection of sensitive areas such as Smith Sound. All these strategies should be continued. However, the FRCC believes that consideration should be given to a more pro-active approach to rebuilding, which could include experimental reseeding of presently vacant coastal fjords with young cod.

The FRCC recommends that DFO in consultation with industry and local and international experts review existing information and investigate the feasibility of using releases of hatchery raised juvenile cod in Newfoundland coastal fjords to rebuild local stock components.

Conclusions

The FRCC has considered the views of fishermen and the Stock Status Report and recommends that the exploitation of cod in coastal areas be kept low to secure growth in the spawning biomass and the likelihood of range expansion. The total biomass in coastal 3KL is estimated to be between 50 and 75,000t. In addition, it is recognized that a component of fish historically caught in southern 3L were migratory from 3Ps, and that under current stock conditions most of the fish caught in coastal southern 3L are from the 3Ps spawning stock.

The FRCC recommends that only sentinel and index fisheries be prosecuted in 3KL. Sentinel fisheries only should be prosecuted in 2J. The total fishing exploitation from all sources in 2J3KL should not exceed a rate of 10% on any sub-stock component. This strategy is similar to that employed in 2000, but recognizes that sub-stock structure may result in removals being variable from area to area.

At present cod biomass differs greatly among regions of 2J3KL. In general, biomass is very low in Labrador waters and along the northern peninsula of Newfoundland. Biomass is high in Trinity Bay and to a lesser extent Bonavista Bay. Notre Dame Bay (3K coastal) has moderate levels of biomass and moderate to high exploitation rates have been indicated since 1998. Southern 3L fish originate for the most part from 3Ps. A fishery whose goal is to provide information to science and management should be spread out over space and not concentrated in any one area. Hence, there is a need to distribute catch across the range of coastal 2J3KL in rough proportion to fish biomass.

The FRCC recommends that total removals for coastal 2J3KL should be broken down by region. For 2J there should be no removals other than 1000

for sentinel fishing. For 3K total removals should not exceed 1000t. For northern 3L, total removals should not exceed 3000t. For southern 3L total removals should not exceed 1500t. Total removals should include directed catch, bycatch, sentinel catch, and any recreational catch.

The FRCC does not foresee any significant change in the recommended exploitation of this stock until there is significant improvement in stock distribution and abundance, especially in terms of spawning stock and recruitment. It is expected that the strategy of keeping exploitation rates at a low level in the short term will have a pay-off to fishermen and industry within a reasonable time, in terms of higher levels of biomass and harvest. The FRCC believes that allowing higher levels of exploitation in the short term will jeopardize stock rebuilding and the opportunity to re-establish a commercial coastal fishery.

Long-term Plan for Northern Cod

The FRCC is in the process of developing a long-term plan for the rebuilding of the northern cod stock. The plan will set out specific objectives to guide the Council in making recommendations on this stock. Consultations with industry and stakeholders and DFO will begin this year. The plan will seek to establish goals with respect to:

- stock distribution and structure;
- long-term target levels for population growth, biomass and harvest;
- conservation regimes for the stock and its sub-components;
- the ecosystem in which the stock is a part;
- enhancement considerations;
- the time frame upon which rebuilding may occur.

In keeping with long-term objectives, and to develop some stability in the 2J3KL fishery, it is recommended that a total removal cap of 5,600t be implemented for 2001. This fishery is an index and sentinel fishery on the 2J3KL cod stock.

Appendix 1: FRCC Mandate and Membership

FRCC Terms of Reference

1. Introduction

The Government of Canada is committed to a more comprehensive approach to the conservation and management of our fisheries resource. This approach demands a better understanding of complex fisheries ecosystems - the interaction of fish with other species, predator-prey relationships, and also changes in the marine environment like ocean currents, water temperatures and salinity.

The Government of Canada is also committed to a more effective role in decision-making for those with practical experience and knowledge in the fishery.

The Minister of Fisheries and Oceans has established the Fisheries Resource Conservation Council (FRCC) as a partnership between government, the scientific community and the direct stakeholders in the fishery. Its mission is to contribute to the management of the Atlantic fisheries on a 'sustainable' basis by ensuring that stock assessments are conducted in a multi-disciplined and integrated fashion and that appropriate methodologies and approaches are employed; by reviewing these assessments together with other relevant information and recommending to the Minister total allowable catches (TACs) and other conservation measures, including some idea of the level of risk and uncertainty associated with these recommendations; and by advising on the appropriate priorities for science.

2. Definition of Conservation

Fisheries conservation is that aspect of the management of the fisheries resource which ensures that its use is sustainable and which safeguards its ecological processes and genetic diversity for the maintenance of the resource. Fisheries conservation ensures that the fullest sustainable advantage is derived from the resource and that the resource base is maintained.

3. Council Objectives

3.1 To help the government achieve its conservation, economic and social objectives for the fishery.The conservation objectives include, but are not restricted to:

3.1.1 rebuilding stocks to their 'optimum' levels and thereafter maintaining them at or near these levels, subject to natural fluctuations, and with 'sufficient' spawning biomass to allow a continuing strong production of young fish; and,

3.1.2 managing the pattern of fishing over the sizes and ages present in fish stocks and catching fish of optimal size.

3.2 To develop a more profound understanding of fish-producing ecosystems including the inter-relationships between species and the effects of changes in the marine environment on stocks.

3.3 To review scientific research, resource assessments and conservation proposals, including, where appropriate, through a process of public hearings.

3.4 To ensure that the operational and economic realities of the fishery, in addition to scientific stock assessments, are taken into account in recommending measures to achieve the conservation objectives.

3.5 To better integrate scientific expertise with the knowledge and experience of all sectors of the industry and thus develop a strong working partnership.

3.6 To provide a mechanism for public and industry advice and review of stock assessment information.

3.7 To make public recommendations to the Minister.

4. Mandate and Scope

4.1 The Fisheries Resource Conservation Council will address these objectives by bringing together industry, DFO science and fisheries management, and external scientific and economic expertise in one body.

4.2 The Council will:

4.2.1 advise the Minister on research and assessment priorities;

4.2.2 review DFO data and advise on methodologies;

4.2.3 consider conservation measures that may be required to protect fish stocks;

4.2.4 review stock assessment information and conservation proposals, including through public hearings, where appropriate; and,

4.2.5 make written public recommendations to the Minister on TACs and other conservation measures.

4.3 The Council may recommend any measures considered necessary and appropriate for conservation purposes such as TACs, closure of areas to fishing during specific periods, approaches to avoid catching sub-optimal sized fish or unwanted species, and restrictions on the characteristics or use of fishing gears.

4.4 The Council's scope includes Canadian fish stocks of the Atlantic and Eastern Arctic Oceans. In the first instance, the Council will address groundfish, and then subsequently take on responsibility for pelagic and shellfish species.

4.5 The Council may also advise the Minister on Canada's position with respect to straddling and transboundary stocks under the jurisdiction of international bodies such as the Northwest Atlantic Fisheries Organization (NAFO).

5. Size, Structure and Make-Up

5.1 The Council will consist of not more than 14 members with an appropriate balance between 'science' and 'industry'.

5.2 Members are chosen on merit and standing in the community, and not as representatives of organizations, areas or interests.

5.3 'Science' members, are drawn from government departments, universities or international posts, and are of an appropriate mix of disciplines, including fisheries management and economics.

5.4 'Industry' members are knowledgeable of fishing and the fishing industry and understand the operational and economic impacts of conservation decisions.

5.5 All members of the Council are appointed by the Minister.

5.6 All members, including the Chairperson, are appointed for a three year term; terms can be renewed.

5.7 Members appointed from DFO serve 'ex officio'.

5.8 Members have to disclose any interest in the Atlantic or Eastern Arctic fishery and take appropriate measures so as to avoid potential or real conflict of interest situations during the term of appointment.

5.9 The four Atlantic Provinces, Quebec and the Northwest Territories may each nominate one delegate to the Council. These delegates have access to the Council's information, and may participate fully in meetings, but will not be asked to officially endorse the formal recommendations to the Minister.

5.10 The Council is supported by a small Secretariat, to be located in Ottawa. The Secretariat will:

5.10.1 provide administrative support for the functioning of the Council;

5.10.2 provide a technical science and fisheries management support;

5.10.3 organize Council meetings;

5.10.4 record decisions of the Council;

5.10.5 undertake a professional communications function for the Council, providing a central point for communications to and from the Council; and

5.10.6 undertake such other matters as from time to time might be appropriate.

5.11 The Chairman may appoint an Executive Committee, consisting of the Chairman, Vice-Chairman, and three other Members.

5.12 In addition, the Chairman may, from time to time, strike an 'ad hoc' committee to deal with a specific issue.

6. ACTIVITIES:

6.1 Reviews appropriate DFO science research programs and recommends priorities, objectives and resource requirements.

6.2 Considers scientific information - including biology, and physical and chemical oceanography, taking into account fisheries management, fishing practices, economics and enforcement information.

6.3 Conducts public hearings wherein scientific information is presented and/or proposed conservation measures/options are reviewed and discussed.

6.4 Recommends TACs and other conservation measures.

6.5 Prepares a comprehensive, long-term plan and a work plan for the Council which are reviewed annually at a workshop with international scientists and appropriate industry representatives.

6.6 Ensures an open and effective exchange of information with the fishing industry and contributes to a better public understanding of the conservation and management of Canada's fisheries resource.

FRCC MEMBERSHIP:

MEMBERS:

Fred Woodman, Chairman
Jean-Claude Bréthes, Vice-Chair
Maurice Beaudin
Bill Broderick
Bruce Chapman
Charlie Dennis
Jean Guy d'Entremont
Gabe Gregory
Nick Henneberry
Frank Hennessey
Dan Lane
Paul Nadeau
John Pope
George Rose

PROVINCIAL DELEGATES:

Ray Andrews, Nunavut
Mario Gaudet, New Brunswick
David MacEwen, Prince Edward Island
Dario Lemelin, Québec
Tom Dooley, Newfoundland and Labrador
Clary Reardon, Nova Scotia

EX OFFICIO:

Gilles Belzille
Barry Rashotte
Dave Gillis

SECRETARIAT:

Michel G. Vermette, Executive Director
Tracey Sheehan
Helena DaCosta
Debra Côté

200 Mile Fishing Zone and NAFO Fishing Boundaries